State of New Hampshire
Department of Transportation

One-Way Toll Report

August 22 - November 1, 2003

Hampton Toll Plaza
Interstate 95

REPORT DATE: MARCH 10, 2004

TABLE OF CONTENTS

Appendices

Executive Summary

Over the past several years, increased traffic volumes on I-95 have resulted in unacceptable traffic backups at the Hampton Toll Plaza during the summer and early fall months. Traffic traditionally peaks in mid-August with another spike over the Columbus Day weekend in October. In an attempt to address the severe backups a one-way toll test was implemented on August 22, 2003 and was concluded ten weeks later on November 1, 2003.

The purpose of this test was to reduce backups during this peak traffic period. Four roadway lanes were designated in the southbound direction for toll free passage and eleven lanes were available in the northbound tolled direction. Traffic responded positively to this new toll situation and no crashes were recorded. Backups in the southbound non-tolled direction, particularly on Sunday evenings were eliminated to the extent that traffic was never observed in a stopped condition. In the northbound tolled direction, traffic backups were significantly reduced even during peak hours of travel.

A major aspect of the test was to evaluate the impact of one-way tolling on revenue. The northbound tolls were established with toll rates doubled in all classes of vehicles, while in the southbound direction no toll fare was collected. When compared against the same time period of the prior year, there was a loss of revenue. The gross loss during the test period was approximately $180,000. Personnel costs were reduced by $47,000 during the test, which resulted in a net revenue loss of $133,000 for the 10-week period. Projecting these results over a full revenue year, the gross loss of revenue would amount to approximately $840,000 with a net loss of approximately $596,000 annually. It should be noted that this projection utilizes data from a relatively short time frame, and actual gains or losses for a full year's operation could vary considerably.

Another major aspect of this test was to assess traffic diversion as a result of doubling the toll in the northbound direction. In the southbound toll free direction, traffic increased by 6.1% during the test period. In the northbound tolled direction of travel, traffic was down by 3.7% or an average of 1,300 vehicles per day during the test period when compared to 2002 traffic counts. Although diversion appears to have occurred for both the northbound and southbound directions, only US Route 1 traffic counts demonstrated volume changes that exceeded normal fluctuations associated with the effects of weather, regional events or local influences. In the case of US Route 1, it appears that I-95 traffic, and in particular truck traffic, did divert to US Route 1 during the test period. The percentage of traffic northbound on US Route 1 increased incrementally about 10% over the 2002 traffic. Traffic both northbound and southbound on US Route 1 during the post-test period returned to approximately the pre-test period percentages.

Introduction

March 10, 2004

Traffic on Interstate 95 at the Hampton Toll Plaza has increased annually over the past 20 years. Peak volumes occur on weekends between Memorial Day and Labor Day, with a final season peak occurring on the Columbus Day weekend in October. Historically, the first two weeks of August have been the peak travel time at this plaza. As traffic growth has increased, motorist delays approaching the Hampton Toll Plaza have become more pronounced and increasingly less acceptable.

On August 14, 2003, Governor Benson directed the Department of Transportation to reduce the traffic back-ups at the Hampton Toll Plaza by developing a test plan for one-way toll collection. On August 21, 2003 the Executive Council approved a resolution for a six-week, one-way toll collection test period to go into effect at 12:00 am, Friday morning, August 22, 2003.

The layout for one-way tolling allowed for 11 lanes of toll collection in the northbound direction and 4 non-tolled lanes in the southbound direction. Impacts on toll revenue were studied as a result of doubling the toll rate for all classes of vehicles in the northbound direction (with autos paying two dollars) and no tolls collected in the southbound direction.

As part of the one-way toll test, the Department also looked at the volume of traffic, particularly truck traffic, diverting off Interstate 95 and onto secondary roads as a result of doubling the toll rate northbound and no toll southbound. Temporary traffic counters were placed on Interstate 95 and on parallel secondary roads to assess diversion.

The six-week, one-way toll test was to conclude on October 2, 2003, but the Governor and Executive Council extended the time to November 1, 2003 to address the heavy traffic typically experienced over Columbus Day weekend. The extension of the test from 6 to 10 weeks allowed for additional traffic and revenue data collection and evaluation.

This report covers the implementation and operation of the 10-week one-way toll test, as well as the impact that one-way tolling had on traffic flow, diversion, and turnpike revenues.

Sincerely,

Carol A. Murray
Commissioner

1. Purpose and Scope

Increased traffic volumes at the I-95 Hampton Toll Plaza have resulted in unacceptable traffic backups along this vital transportation corridor serving New Hampshire and the region. The capacity of the mainline toll plaza in Hampton to process traffic is limited by the number of toll lanes, current collection strategies and existing hardware. In an effort to improve the capacity of the Hampton Toll Plaza several options have been, and continue to be considered, including adding toll lanes, introducing E-Z Pass toll collection, high-speed electronic toll collection, and one-way tolling. At the direction of Governor Benson and with the approval of the Executive Council, one-way tolling was introduced on an experimental basis. (See *Appendix #1* and *#2* for Governor and Council Resolution authorizing the toll rate change.)

The purpose of the one-way toll test was to evaluate traffic operations in both the northbound and southbound direction on I-95 at the Hampton Toll Plaza, and the subsequent impact on revenue. An evaluation of traffic diversion onto, and off of, secondary roads as a result of doubling the toll rate in the northbound direction and having no toll in the southbound direction was another component of this test.

The test began on August 22, 2003 and continued for 10 weeks through November 1, 2003. The operational period ended on Saturday, November 1 at midnight, with the southbound tolls re-established and northbound tolls returned to previous toll rates. The operation of one-way tolling was concluded largely due to safety concerns relative to winter maintenance in conjunction with the speed of traffic through the southbound tollbooths and the lane configuration through the southbound tollbooths. While the operation of one-way tolling was suspended on November 1, traffic counts and revenue tallies have continued in an effort to evaluate the affects of one-way tolling.

2. Implementation Plan

The implementation of one-way tolling was developed with consideration for maintaining safe traffic operations and the safety of the staff implementing the Plan. The conversion to a one-way toll condition and re-conversion back to a two-way toll condition, each required approximately 9 working hours to implement. It was decided to implement one-way tolling during off-peak traffic hours with the actual conversion for one-way toll collection taking place at midnight on August 21, 2003. The re-conversion to a two-way toll collection occurred at midnight on November 1, 2003.

The four far right southbound toll lanes were utilized for toll free lanes as they provided the greatest width for safe passage of all types of vehicles. This created an "s" curve in the roadway approaching the plaza. Therefore, out of a concern for safety, the speed limit was reduced to 35 M.P.H. to minimize the potential for crashes while passing through the plaza area.

Over 50 state employees were required to implement the conversion and re-conversion plan including 10 NH State Police troopers to control traffic. The implementation plans also required 20 state trucks for overhead signing and traffic control approaching the toll plaza.

The implementation plan included placing 10 variable message signboards on I-95 in advance of the toll plaza. Message boards were placed one week in advance of the planned conversion date to notify frequent highway users of the upcoming change. The advanced messages also advised motorists of the change in fares and the status of the southbound toll collection, as well as cautioned motorists to reduce speeds and be alert.

During implementation to one-way tolling the Department also deployed 200 traffic-channelizing devices, 2 portable light towers, 3000 feet of temporary pavement marking tape and 60 raised pavement markers. The conversion also required over 40 toll related signs to be covered or replaced. Re-conversion to two-way tolling required similar materials and equipment and a similar work effort. The removal of temporary pavement markings went particularly well, although standby equipment was available if the tape became resistant to removal.

The conversion included the installation of temporary traffic counters on the I-95 exit 2 ramps, the four non-tolled southbound lanes at the toll plaza, and adjacent secondary roads.

The cost associated with traffic control signing and implementation to convert Hampton Toll Plaza to a one-way toll condition and revert back to a two-way toll totaled approximately $71,000. Given the quick implementation of one-way tolling, traffic data collection prior to implementation was limited.

3. Impacts to Operation

Prior to implementing one-way tolling the Hampton Toll Plaza employed 31 full time Toll Attendants and 72 part-time Toll Attendants, including 26 part-time Toll Attendants working static schedule blocks of 32 or 35 hours. These part-time 32/35-hour "block" schedules were created several years ago as a hiring incentive and resulted in greater part-time employee retention. Part-time Toll Attendants working 32/35-hour block schedules are eligible to participate in the State of New Hampshire pro-rated health and dental programs.

During the one-way test, full time toll attendants' schedules were not affected. All part time toll attendants experienced temporary reductions in work hours but were offered work hours at other toll facilities. Part time toll attendants who worked no more than 29 hour schedules were reduced to 15 hours or less schedules and part time toll attendants working 32/35 hour block schedules were reduced to 29 or less hour schedules, on average. The 32/35-hour block part time toll attendants were allowed to retain pro-rated health benefits during the test period by approval of Department of Administrative Services.

The changing of part time schedules resulted in some Hampton part time toll attendants having reduced availability because they had taken on other jobs to make up the loss of income. Three part time toll attendants resigned. After the test period, when previous staffing schedules for both northbound and southbound resumed, three part time toll attendants working 32/35 hour block schedules declined their 32/35 hour status because of scheduling conflicts with other new employment. At the time of this report there are seven vacant part-time positions with 32/35-hour block schedules at Hampton Toll, and the hiring of part time toll attendants has resumed.

During the test period, the Bureau did not hire any part-time toll attendants, system wide, and Hampton Toll part-time toll attendants were offered hours at all other toll facilities. Payroll costs at the Hampton Toll Plaza for the two-week period leading up to the one-way toll implementation was $89,477. Payroll costs following implementation for a two-week period were $86,516. Subsequently, payroll costs were reduced still further as attendant schedules were reorganized.

Implementing one-way tolling on a permanent basis would ultimately result in no reductions in full-time toll attendant positions, but would result in a reduction of 15 part-time toll attendant positions by schedule slots. This reduction of part-time toll attendant positions would reduce the yearly Turnpike Operating Budget for this service by approximately $244,000.

4. Traffic Impacts

Going into the test period, the Department had concerns relative to safety in the southbound direction. The two main areas of concern were:

- Speed of the vehicles through the toll plaza
- Drivers, unfamiliar with the plaza, stopping in the lanes.

During the ten-week test, the Department and the NH State Police routinely observed vehicles that exceeded the posted speed limit of 35 MPH through the plaza area, but during the test period, there were no crashes in either the north or southbound direction.

Relative to traffic flow during the test period, traffic in the southbound direction experienced no delays that resulted in stop and go traffic, and traffic in the northbound direction was at no time subjected to the lengthy backups regularly experienced during peak summer weekend periods prior to the test. This was accomplished by opening one additional toll lane in the northbound direction, resulting in a total of 11 toll lanes in the northbound direction during peak traffic volume hours.

In an effort to analyze how the one-way toll test influenced traffic volumes on I-95, traffic volumes before, during, and after the test period were compared with traffic volumes in the same time period in 2002. Northbound traffic volumes were recorded by the toll collection system. Pneumatic tube counters installed across each southbound toll lane recorded southbound traffic volumes. Generally tube counters are reliable, however in high speed, high volume areas, tubes can be damaged, and consequently there were some days the traffic counts were not available due to equipment failures. This caused some inconsistencies in the data.

Prior to the start of the ten-week one-way toll test, traffic in the northbound direction from July 1, 2003 to August 21, 2003 was compared to prior year 2002 data. The data indicated that traffic at the Hampton Toll Plaza, in the northbound direction, was down 3.0% over the period, while the southbound direction was down 3.2%. (See *Appendix 3*.)

During the ten-week test period of August 23, 2003 through November 1, 2003, northbound traffic at the Hampton Toll Plaza was down 3.7% when compared to the same period of the prior year, and in the southbound direction, traffic was up 6.1% over the same period of the prior year. The data also shows that traffic was down 7.7% over the first two weeks, but only down 5.7% over the next two weeks, progressively improving so that the decline was only 3.7% lower than the previous year for the same time period. (A spreadsheet of the data compared can be found in the Appendices. *Appendix 3)*

Since resumption of two-way tolling, for the period of November 2, 2003 through January 7, 2004, northbound traffic at the Hampton Toll Plaza has increased 1.9% over the same period of the prior year. Southbound traffic shows an increase of 1.4% over the same period of the prior year. (Post period traffic data for northbound and southbound is shown in *Appendix 6.*)

Appendix 8 (Northbound) and *Appendix 9* (Southbound) illustrates the percentage change in the volume of traffic in 2003 compared to the volume of traffic in 2002. The volumes

are compared in corresponding two-week blocks for the pre-test time period, the test period and the post period. These bar graphs show how traffic volumes in 2003 varied from 2002. The graphs are of interest as they show that while traffic volumes were down prior to the test period, they remained down in the northbound direction during the test period, while they increased fairly dramatically in the southbound direction during the test period. Following the test period the volumes in 2003 in both directions were higher than 2002 except for the period of two storm events.

The Department also received data from the Massachusetts Highway Department and the Maine Turnpike Authority. The traffic data received indicated that I-95 northbound traffic in Massachusetts was up from the prior year until the test began at the Hampton Toll Plaza. After one-way tolling was implemented, traffic on I-95 northbound in Massachusetts decreased to slightly below 2002 levels. Northbound traffic data from the York toll plaza in Maine remained positive over the entire period from July through September 1, 2003.

Lastly, when comparing the traffic volumes during the timeframe before, through, and following the test period to the previous year, consideration should be given to the following: the tourist season was ending, gas prices had increased fairly dramatically, school had started earlier than the previous year, and tourist traffic is weather dependent, all of which affects traffic volumes. In addition, the US 1 / NH 107 intersection improvement project, just east of I-95 / Exit 1 was completed in the same timeframe that the one-way tolling was implemented. Conceivably, some motorists who had been avoiding the construction at the intersection returned to US 1 with the construction completed which resulted in some reduction in I-95 northbound traffic.

5. Traffic Diversion

As part of the one-way toll test, the Department examined directional traffic counts at permanent traffic recorders located on I-95 in Seabrook and Hampton Falls, US 1 in North Hampton, NH 108 in Stratham, and NH 125 in Lee to determine changes in travel patterns that may have been caused by toll changes. In addition, short-term counters were set out on those routes and other potential diversion routes to estimate the amount of traffic, including trucks, that may have been diverted because of the toll changes. (The recorder locations are shown on page 12.) All of the alternate routes except US 1 showed changes in traffic volumes within the normal range of fluctuation, and consequently do not appear to have been influenced by the one-way toll test.

On US 1, traffic data were collected at two locations. Data was collected daily at the North Hampton permanent recorder near the Rye Town Line. At this location, road tube counters for all classes of vehicles were installed 4 days before the beginning of the one-way toll test, and were left in place for two weeks after completion of the test. At the Hampton/Hampton Falls Town Line south of NH 101, road tube counters were installed after the beginning of the test, and were left in place until snowfall, approximately one month after completion of the test. In addition, permanent equipment was installed on November 26 at this location to continue counting the number of vehicles and trucks using US 1 after the one-way toll test period ended.

At the North Hampton US 1 recorder, Average Week Day Traffic was determined by direction for three time periods: prior to the one-way toll test, during the test, and after the test. As shown in the table below, the number of vehicles compared to 2002, and the number of semi-trucks, increased in the northbound direction and decreased in the southbound direction on US 1 during the test. After the test, the directional split returned to approximately the same as before the test with somewhat more total traffic and trucks northbound than southbound. The numbers in parentheses show the increase in traffic from 2002 for the same time period. No percentage increase in semi-trucks can be shown because trucks were not counted in 2002. Seasonal variation in traffic flow accounts for the smaller absolute numbers of total vehicles during and after the test.

Average Weekday Traffic on US 1 in North Hampton

	Aug 1 to 22, 2003	Aug 23 to Oct 31, 2003	Nov 1 to 30, 2003
Total Vehicles			
NB	10550 (+4.1%)*	9960 (+9.9%)	8750 (+6.0%)
SB	10460 (+1.6%)	9320 (+2.5%)	8610 (+3.7%)
Semi-trucks			
NB	110**	120	100
SB	70	50	60

* The numbers in parentheses show the increase in traffic from 2002 for the same time period.

** No percentage increase in semi-trucks can be shown because trucks were not counted in 2002.

Another way to view the data is to look at the directional distribution of the traffic. The table below shows the percentage distribution by direction for all vehicles combined (cars

and trucks) and separately for semi-trucks on US 1 in North Hampton during the three time periods. There was a small shift in the distribution of vehicles as some northbound vehicles avoided the toll on the Turnpike. However, there was a much larger percentage shift for semi-trucks to the northbound direction during the test. After the test, the percentages returned to approximate pre-test levels.

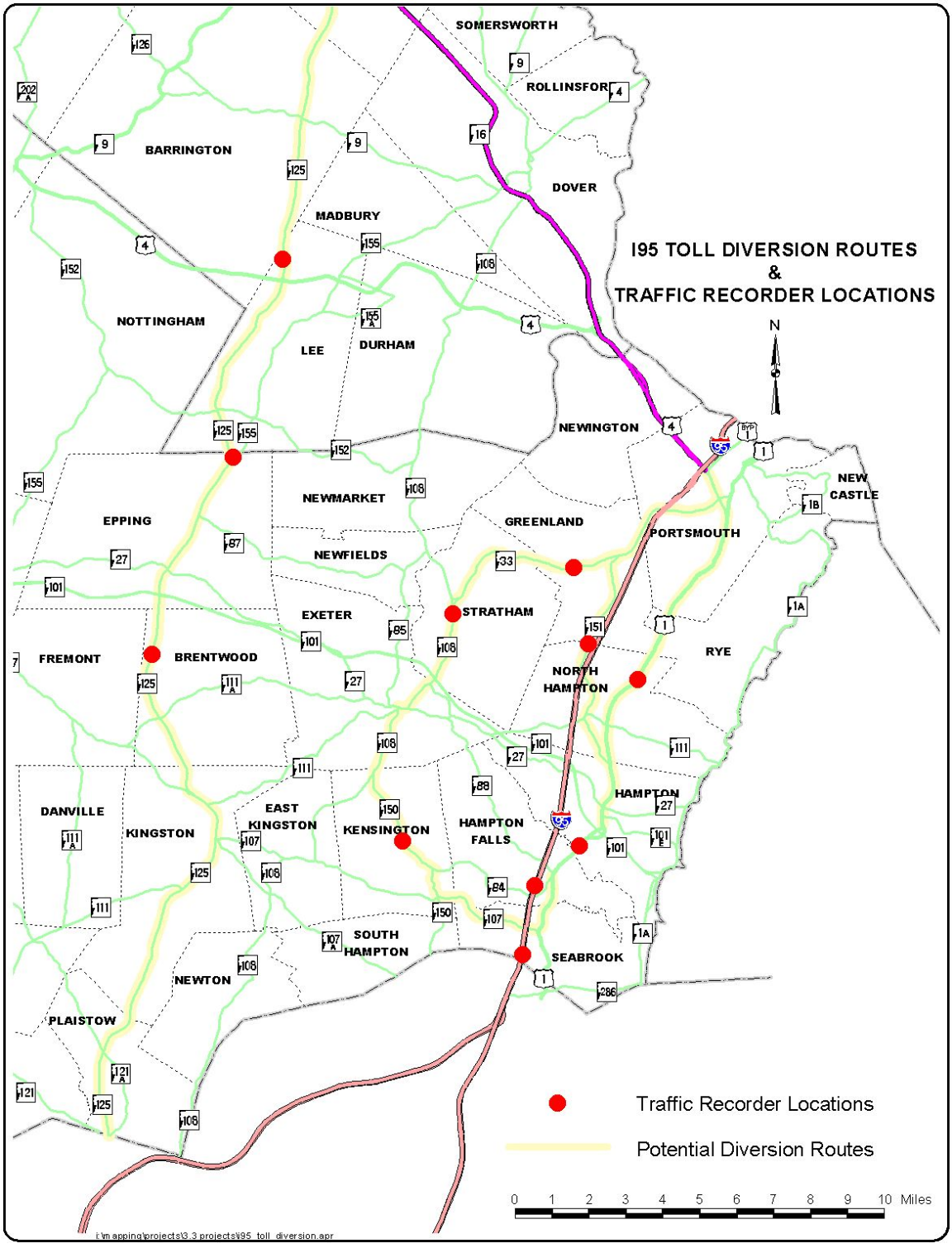
Average Weekday Traffic Distribution on US 1 in North Hampton

	Pre-Test Aug 1 to 22, 2003	During Test Aug 23 to Oct 31, 2003	Post Test Nov 1 to 30, 2003
Total Vehicles			
NB	50%	52%	50%
SB	50%	48%	50%
Semi-trucks			
NB	60%	71%	61%
SB	40%	29%	39%

At the Hampton recorder on US 1, South of NH 101, the collection of data began after the one-way toll test period was underway, so there is no data prior to the test. For the time periods in which data was collected, the directional traffic patterns are similar to the North Hampton patterns, although the volumes are larger. No data were collected during 2002, so no growth comparisons could be made.

Average Weekday Traffic on US 1 at the Hampton/Hampton Falls Town Line

	Pre-Test Aug 1 to 22, 2003	During Test Aug 23 to Oct 31, 2003	Post Test Nov 1 to 30, 2003
Total Vehicles			
NB	N/A	11990 (54%)	9960 (51%)
SB	N/A	10220 (46%)	9590 (49%)
Semi-trucks			
NB	N/A	180 (68%)	120 (56%)
SB	N/A	80 (32%)	90 (44%)



I-95 One-Way Toll Test Traffic Recorder Locations

6. Revenue Impacts

Prior to the start of the one-way test, daily revenue deposits from July 1, 2003 to August 21, 2003 were compared to prior year revenue deposits. The data indicated that revenue at the Hampton Toll Plaza, in total, was down $42,000 or –0.9% compared to the same period of the prior year. (*Appendix 4*)

Spreadsheets and graphs on toll revenue comparisons for the August 22-November 1, 2003 period are included in the appendices. *(Appendix 4 and 5)* These spreadsheets show the revenue comparisons of the 2002 and 2003 dates within the time period noted. The revenues shown reflect the trends noted in the discussion relative to traffic volumes on the I-95 mainline. The daily variance between the two years shows that the Friday and Saturday total revenue northbound for 2003 produced a slight revenue increase over 2002 northbound and southbound combined. However, the other days of the week show revenue losses. This is consistent with the traffic volumes along the I-95 mainline northbound.

For the 10 weeks of the test period the total cumulative revenue for all vehicles was down approximately $180,000 or 3.6% as compared to the same period in 2002. Commercial charge card revenue for trucks was down $47,000 or 8.8% during this test period as compared to the prior year. As previously explained, this figure may be the result of some amount of diversion, but also some fluctuation of traffic due to gas and fuel prices, weather, completion of construction at the US 1 / NH 107 intersection, and other factors.

There were reduced personnel costs totaling $47,000 due to the non-staffing of an average of four southbound toll lanes. The annual personnel savings from a reduction of staffing hours is projected to be $244,000.

For the post test period of November 2, 2003 through January 7, 2004, revenue at the Hampton Toll Plaza increased 1.8% over the same period of the prior year. *(Appendix 7)*

Based on a 3.6% revenue loss experienced during the test period and total revenue collected during 2003 of $23,361,901, the annual gross loss can be projected to be $840,000. With estimated gross annual revenue losses at $840,000 and with $244,000 of personnel cost savings, a projected annual net loss is estimated to be $596,000. The projected net loss of $596,000 is based on indicators resulting from short test time period. NH Hampton Mainline toll revenue would be affected by the length of the one-way toll, the seasonal congestion both on Route 1 and I-95 NB during the summer and the ease of diversion during non-tourism times of the year. It is difficult to draw firm conclusions from the data as to whether this revenue loss represents a worse case scenario or whether revenue losses would be less as a result of less diversion over time. Historically following the initial shock of rate increases, there has been substantial diversion which subsides over time, reducing revenue losses. However, in this case the doubling of the toll is considerably different than a small percentage increase in rates, and consequently it is difficult to predict whether diversion would continue to decrease to still lesser amounts over time.

7. Previous One-Way Toll Studies

One-way tolling is a subject that has been studied previously on the Turnpike System in New Hampshire. As early as 1991, the Department of Transportation looked at possible one-way scenarios at the Dover Toll Plaza to relieve traffic congestion.

More recently the Department of Transportation directed its Traffic and Revenue Consultant, Wilbur Smith Associates, to study this subject again at the Hampton Toll Plazas. This was done as part of a comprehensive study to look at "Potential" Impacts of System Modifications and Business Plan Analysis of the Turnpike System". This study was approved by Resolution of the Governor and Council on February 9, 2000 and was completed in April of 2001.

The objective of this study was to identify and evaluate various alternatives for alleviating traffic congestion at the Hampton Mainline and Hampton Ramp toll plazas. Several one-way toll collection alternatives were evaluated in conjunction with both one-way or two-way toll collection at the mainline and ramp toll plazas. Both toll plazas, although separated by less than a mile are characterized by two different types of travel. The mainline tends to serve a high proportion of recreational and out-of-state travelers as it links Massachusetts, New Hampshire and Maine. As a result, during peak summer weekend and holiday periods, motorists can experience significant backups. Conversely, the ramp plaza serves more localized, commuter oriented traffic during weekdays with occasional back-ups occurring during peak traffic hours.

After extensive study, several constraints were identified at the ramp plaza that would limit the ability to implement one-way toll collection. Insufficient weave distance for approach and departure traffic was determined to be a deterrent for considering this toll facility for one-way toll collection.

Essentially two alternatives were developed for mainline tolling – one northbound and one southbound with alternatives for at least doubling the toll in either direction. Concept plans were developed based on the need for 12 lanes in the tolled direction with 4 roadway lanes remaining for the non-tolled directions. *(Appendix 8*) Roadway approach and departure conditions were evaluated for one-way toll collection. The roadway approach to the plaza is also governed by concrete bridge piers located within 1,000 feet on either side of the plaza.

The study concluded that the piers north and south of the plaza would restrict traffic approaching and departing the plaza, affecting the ability to efficiently move traffic through the plaza toll lanes. It further concluded that one-way toll collection would eliminate traffic back-ups in the non-toll direction, however, it could not conclude that back-ups in the tolled direction would be eliminated given the volumes and constraints mentioned.

The study recommended that a detailed evaluation of the mainline I-95 roadway capacity be conducted to conclusively determine if traffic congestion could be alleviated at the Hampton Toll Plaza using one-way tolling. From a revenue perspective it concluded that a $2.00 one-way toll would not produce a net revenue neutral condition. The study recommended a $2.25 toll for passenger cars and similar increases for other classes of vehicles. The anticipated reduction in annual gross toll revenue due to diversion in the tolled direction would be greater than the annual operating and maintenance savings produced by fewer attended toll lanes.

Based on the one-way toll test it appears that the conclusions and recommendations from this earlier consultant study were fairly reasonable relative to diversion and revenue losses, at least over this 10-week period. Relative to the physical constraints of the highway and bridge infrastructure restricting traffic flows in the toll direction, such constraints were not a factor for the overall traffic volumes involved. Under higher traffic volumes, the need for a twelfth toll lane (as recommended in the study) would likely be necessary, at which point the physical constraints north and south of the plaza could presumably be a factor. Critical placement of future electronic toll collection lanes may eliminate the need for a twelfth toll lane altogether, dependent upon the market penetrations of E-Z Pass. Not having a twelfth toll lane would allow for additional buffer area between the northbound and southbound resulting in improved safety.

8. Summary

In summary, increased traffic volumes on I-95 have resulted in unacceptable traffic backups at the Hampton Toll Plaza during the summer and early fall months. Traffic traditionally peaks in mid-August with another spike over the Columbus Day weekend in October. In an attempt to address the severe backups, a one-way toll test was implemented on August 22, 2003 and was concluded ten weeks later on November 1, 2003.

The purpose of this test was to examine the effects on backups during this busy period. Four roadway lanes were designated in the southbound direction for toll free passage. Traffic responded positively to this new toll situation and no crashes were recorded. Backups in the southbound non-tolled direction, particularly on Sunday evenings were eliminated to the extent that traffic was never observed in a stopped condition.

In the northbound tolled direction, eleven toll lanes were made available (one more lane than had ever been available in the past) to expedite vehicle passage through the toll plaza. Congestion was relieved in this direction as traffic backups in peak travel periods were significantly reduced from over 5 miles in length in prior years and earlier in 2003, to less than 1½ miles on Labor Day weekend, and still less in other peak periods. Again, no crashes occurred and the bridges over the Turnpike just north and south of the plaza did not create any constraint issues for traffic entering or leaving the plaza.

A major aspect of the test was to evaluate the impact of one-way tolling on revenue. When compared against the same time period of the prior year, there was a loss of revenue. The gross loss during the test period was approximately $180,000. Personnel costs were reduced by $47,000 during the test, which resulted in a net revenue loss of $133,000 for the 10-week period. Projecting these results over a full revenue year the gross loss of revenue would amount to approximately $840,000, with a net loss of approximately $596,000 annually. It should be noted that this projection utilizes data from a relatively short-time frame and actual gains or losses could vary considerably. The rate of diversion was declining as the testing period continued. Historically when toll prices change, traffic diversion occurs and then recedes over time. Presumably the same type of response would occur over the long term with one-way tolling, although the degree of residual diversion could be greater in this case given the significant rate increase in the toll direction. Lastly, at the time of the test, gas prices were increasing substantially, school vacations were ending early, and the construction at the US 1 / NH 107 intersection was concluding. These events, and weather related issues may have contributed to the decrease in revenue during this period.

Another major aspect of this test was to assess traffic diversion as a result of doubling the toll in the northbound direction. In the I-95 southbound toll free direction, traffic increased by 6.1% during the test period. It is assumed that additional vehicles came from secondary roadways in the vicinity of I-95. In the northbound tolled direction of travel, traffic declined by 3.7% or an average of 1,300 vehicles per day during the test period when compared to 2002 traffic counts. Traffic data collected along possible diversion routes (except US 1) indicates no direct correlation with the decline in traffic on I-95 northbound. Similarly, the increase in southbound traffic on I-95 does not correlate with fluctuations in traffic volume on these same routes. However in the case of US 1, it appears that traffic, and in particular truck traffic, did divert to US 1 during the test period.